

What is claimed is:

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1. ~~An electrode assembly for use in an intraventricular multi-electrode cardiac mapping probe comprising:~~

5 at least one elongated spline carrying a plurality of spaced apart electrodes thereon, means for attaching said spline to the distal end of a catheter, said spline comprising a plurality of alternating electrically conductive layers and electrically non-conductive layers, an electrical conductor connecting each of said electrodes to a different one of said conductive layers, and a plurality of electrical conductors for connecting each of said layers to an electrical signal processing device.

10 2. A device according to claim 1 wherein each of said alternating conducting and non-conducting layers is configured in the shape of a concentric ring, and said spline is of a circular cross-section.

3. A device according to claim 2 wherein said electrodes are connected to said conducting layers by means of radially depending conductive pins each connecting an electrode at the surface of said spline with a conductive layer formed in the interior thereof.

5 4. An assembly according to claim 1 wherein said spline has a rectangular cross-section, said electrodes being spaced along the top surface thereof, each spline being of a substantially greater width than thickness whereby said spline can be flexed in one vertical plane that passes through its longitudinal axis but resists twisting and resists flexing in all other planes passing through said axis.

5 5. A device according to claim 4 wherein each of said electrodes is connected to one of said conducting layers by means of a conductive pin, each

5 of the conductive pins and said assembly being of a different length.

6. A device according to claim 5 wherein each of said pins is electrically insulated except at each of its ends.

5 7. A device according to claim 1 wherein the distal end of said spline is provided with means for quick connection of the same to end cap member, said end cap being adapted to be connected to the ends of a plurality of said splines which form a mapping array.

8. An electrode assembly for use in an intraventricular multi-electrode cardiac mapping probe comprising:

at least one elongated rectangularly cross sectioned spline carrying a plurality of spaced apart electrodes on the upper surface thereof, means for attaching the proximal end of said spline to the distal end of a catheter, means for attaching the distal end of said spline to an end cap, the body of said spline comprising a plurality of alternating electrically conductive layers and electrically non-conductive layers, said conductive layers having a thickness of about 0.0005 to 0.002 inch, said spline being of a substantially greater width than thickness whereby said spline can be flexed in one vertical plane passing through its longitudinal axis but will resist flexing in any other plane passing through said axis,

an electrically conductive pin connected to each of said electrodes, the pin connected to each electrode being of a different length than that connected to each of the other electrodes, each of said pins extending into the body of the spline and being attached to one of said conductive layers, each of said pins being electrically insulated except at each

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of its ends, and

a plurality of electrical conductors for connecting said layers to an electrical signal processing device.

9. An electrode assembly for use in an intraventricular multi-electrode cardiac mapping probe comprising:

at least one elongated spline of a circular cross-section carrying a plurality of spaced apart electrodes on the exterior surface thereof, means for attaching the proximal end of said spline to the distal end of a catheter, means for attaching the distal end of said spline to an end cap, said spline comprising a plurality of concentric alternating electrically conductive layers and electrically non-conductive layers, said conductive layers having a thickness of about 0.0005 to 0.002 inch,

an electrically conductive pin connected to each of said electrodes, the pin connected to each electrode being of a different length than that connected to each of the other electrodes, each of said pins extending into the body of the spline and being attached to one of said conductive layers, each of said pins being electrically insulated except at each of its ends, and

a plurality of electrical conductors for connecting each of said layers to an electrical signal processing device.

10. A device according to claim 9 wherein said electrodes are ring electrodes that encircle said spline.